



U.S. NAVAL ACADEMY SAILING PROGRAM



P-100



CSNTS



Intercollegiate



Offshore

To ensure safety at sea, the best that science can devise and that naval organization can provide must be regarded only as an aide and never as a substitute for good seamanship, self reliance, and a sense of ultimate responsibility which are the first requisites in a seaman and naval officer

Fleet Admiral Chester W. Nimitz
Letter to the Pacific Fleet
1945



Today

- The CSNTS Program – Executive Overview
- Navigation 1
 - Some background on why we are spending so much time on navigation training
 - Basic principles
 - Chart preparation



The CSNTS Program

- Mission Statement: Train Midshipmen to be Naval Officers...
- Leadership and Teamwork
- Watchstanding
- Small boat handling
- Knowledge of and appreciation for the forces of wind and sea
- Relative motion
- Marlinspike seamanship
- Meteorology and oceanography
- Forehandedness and vigilance
- Shipboard organization
- Navy preventative and corrective maintenance systems (3M)
- Navigation (open ocean and coastal piloting)
- Damage control



Note!!!

- Sailing isn't on the list
- We don't teach sailing!!!
- But, we teach people how to sail...
... Because it underpins safety





So, What Do We Do?

- We teach midshipmen deck watch officer skills in the open cockpit of a small boat, inshore and offshore, in all weather.
- Implicit in the process is small unit leadership and teamwork training
- What we call “The Leadership Laboratory”





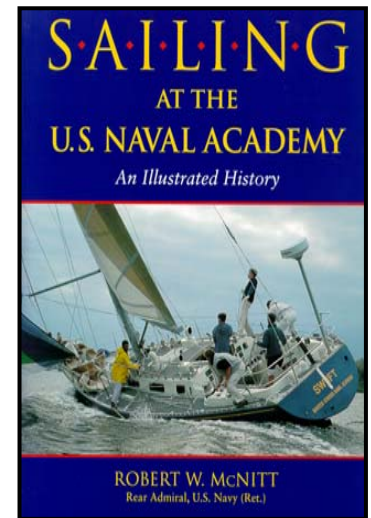
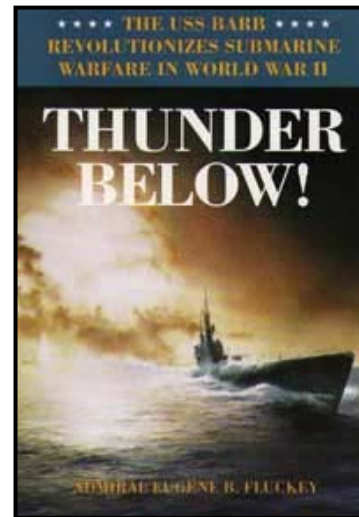
What Are Deck Watch Officer Skills?

- C - Command Presence
- S - Basic Seamanship
- N - Principles & Practice of Basic Navigation
 - Specific emphasis on piloting & deduced reckoning
 - Introduce electronic aides to navigation
 - Radar, Loran C, GPS (if equipped)
 - Introduce celestial navigation
- T – Train the Mids
- S – Squadron integrity to mitigate risk



The CSNTS Program

- A logical and meaningful extension of what happens in the classroom
- Intermediate level seamanship training in the unpredictable offshore environment
- Literally “Stick & Rudder” Training for OODs
- Compete - Against wind, wave, weather and Self





Why do we train in sailboats?

- You can't just ride...
- Must operate this type of vessel
- Hand, reef and steer
- While navigating and running a watch section





Navigation 1

CDR Gerard VandenBerg
Deputy Director, Naval Academy Sailing



Principles & Practice of Basic Navigation

- Chart preparation as an element of voyage planning
- Fix taking
- Fix evaluation
- “Minimum Cyclic Routine”
 - Plot, Label, DR.. Plot, Label, DR.. Plot, Label, DR...
- Situational Awareness & “Gut Feel”
- Watch Captain involvement
- Midshipman Navigator involvement
- Officer in Charge involvement



Big Misunderstanding...

The OIC/AOIC

The safe and proper navigation of Sail Training Craft (STC) is, at all times, the responsibility of the assigned Officer in Charge (OIC).

The OIC shall delegate navigational authority to the embarked midshipmen whenever possible in order to enhance their training; however, ultimate responsibility will

reside permanently with the OIC



Navigation Related Incident Summary

Summer 2002

- Grounding - Coaster's Harbor
- Grounding – Bermuda
- Grounding - Delaware River
- Grounding - Exit of C&D Canal
- Grounding - Coast of Maine
- Grounding - Eastern Bay
- Grounding - Greenbury Point
- Allision with bridge – Newport
- Allision with buoy – Delaware River (motoring)



Navigation Related Incident Summary Summer 2003

- Grounding – Tolly Point
- Allision with bridge – Chesapeake Bay Bridge
- Grounding – Southport Marina Entrance



Groundings...

Why Such A Big Deal???

- Groundings on the bay
- Groundings in New England
- Congere's Three Bump Rule...
 - First bump - you know you're hosed
 - Second bump the rig comes down
 - Third bump – The keel's in the cabin/boat sinks
- The Navy 44



The Navy 44...



- Designed and built as a “Sail Training Craft”
- Routinely experience very heavy use
- Spartan comfort...
- Underpins program safety & surety



Training Regimen For Prospective Program Participants

The Navigation Curriculum

- Our course teaches the practice of navigation
- It does not teach the analytical underpinnings
- Need to develop proficiency in the classroom so that you can “degrade gracefully” when at sea...
 - What do I mean by that?
- The Flight Instructor Analogy



What We'll cover

- This course teaches the practice of navigation
 - Need to develop proficiency here, in the classroom, so that you can “degrade gracefully” when at sea...
- It doesn't teach tides and currents
- It does not teach the analytical underpinnings
 - That's left to you
 - Read Hobbs, or US Sailing's Coastal Navigation Text



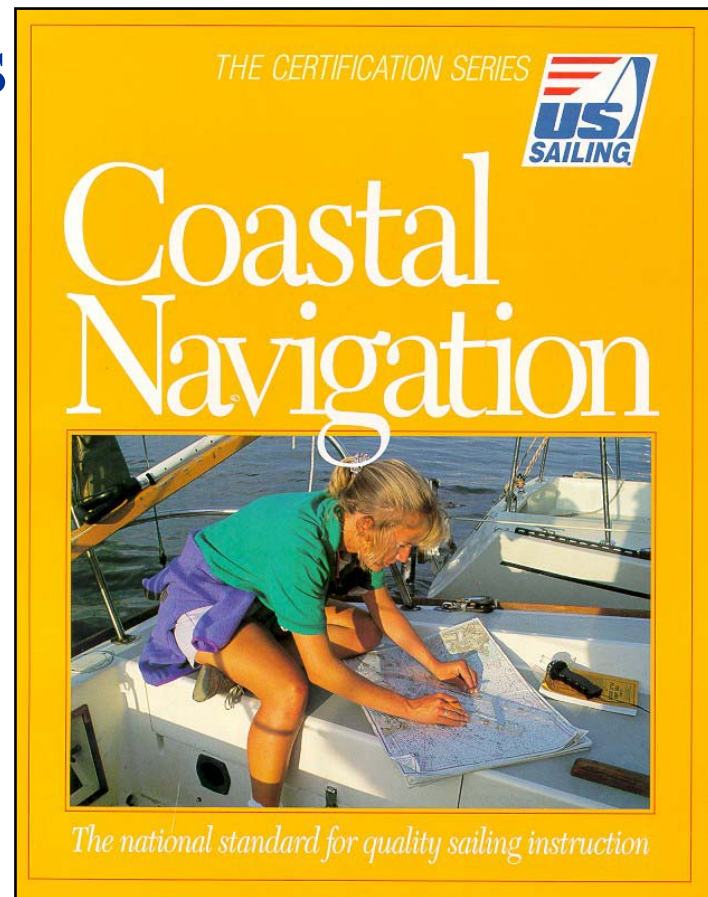
The Text Books...

Particularly useful

- Teaches short-handed Nav Skills
- Teaches “seaman’s eye”
- Uses layman’s terminology

But...

- The Navy uses the “alternative plotting method”
- We use “Degrees Magnetic”





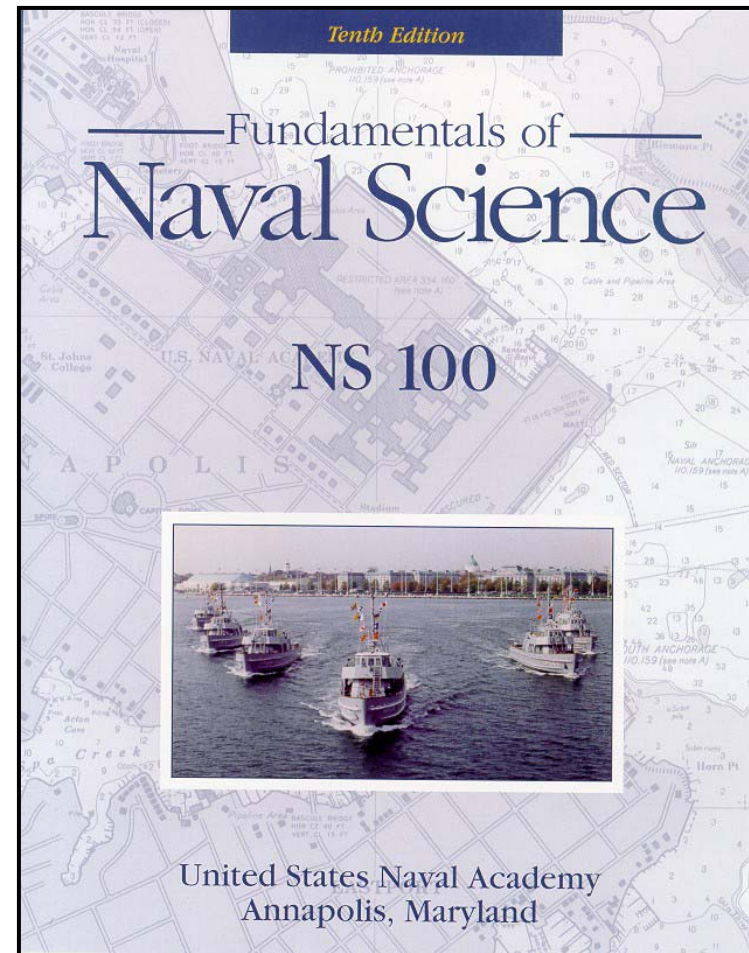
The Text Books...

The Midshipmen's Text

We teach this to our
prospective program
participants

Why?

“Shipmate...
I Read the Book”





Course Overview...

- The Chart
 - Primary emphasis on chart preparation
- The Fix
 - Visual & Electronic
 - Accuracy and errors
- The DR
 - The most important thing on the chart
- Navigation Party
 - Organization, procedures & philosophy
- Making landfall
 - The Navigation Brief



Before We Talk About Charts...





What's In The Average Nav Table?

I Bet These Are The Only Navigation Instruments You Find...



Dividers & Compass



The Other Tools of the Trade...

Nautical Slide Rule



Roller Plotter

What Am I Missing???

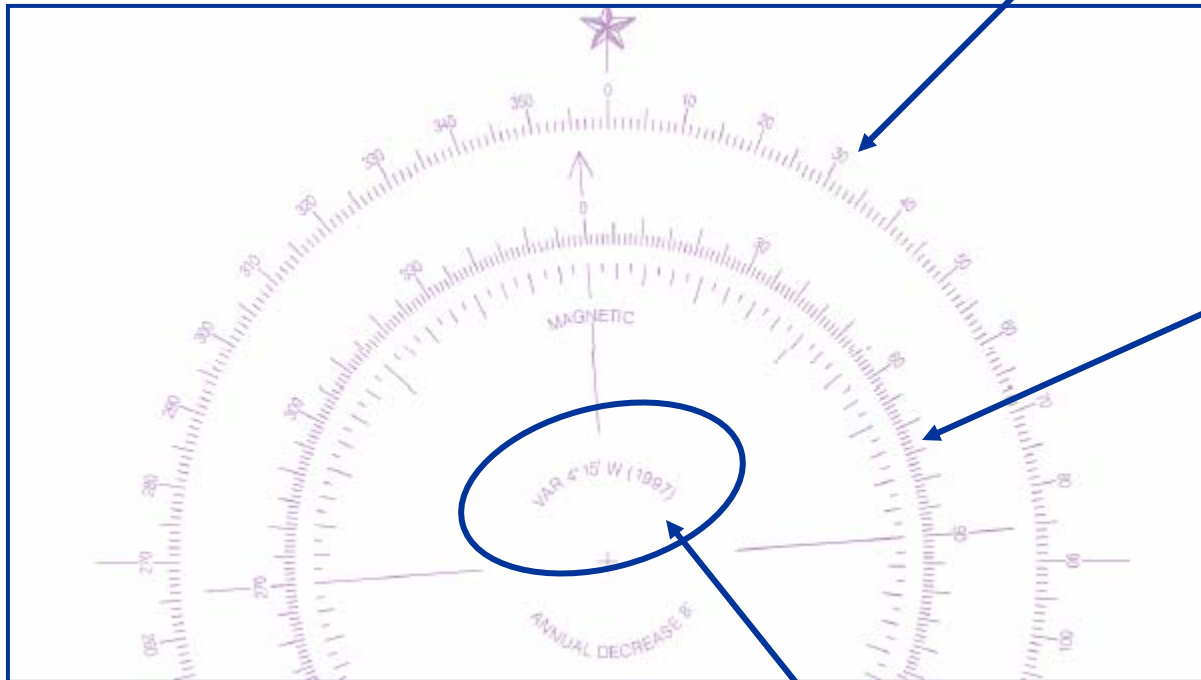




The Compass Rose...

Degrees True

- Don't use this one...



Degrees Magnetic
- Use this one!!!

Variation...

- What do you need to know?



The Steering Compass...



NOTE:
These Are
Not Used For
Navigation!!!





The Hand Bearing Compass...



Key elements:

- Almost Midshipman Proof
- Susceptible to deviation errors
- They come with a Lanyard – Use it!!!

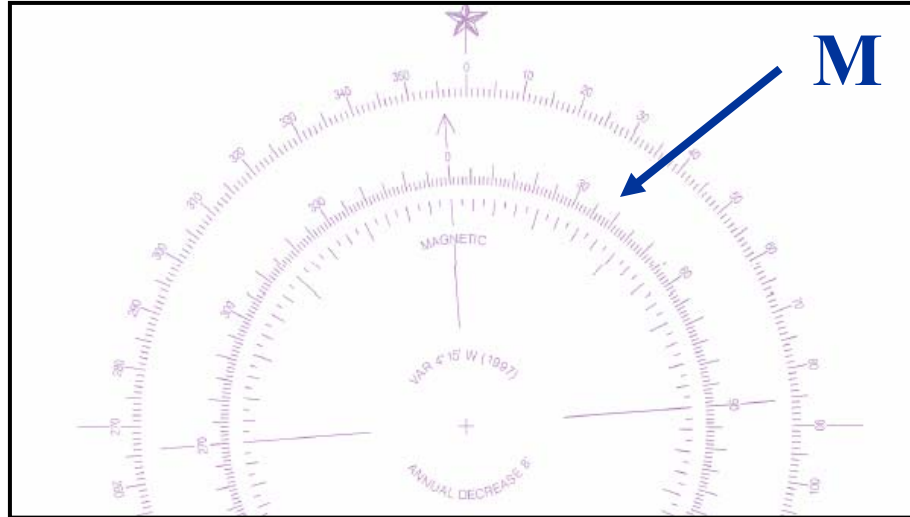




The Bottom Line...



A



B



C

We assume Deviation = 0

$$\underline{A = B = C}$$



Unless...



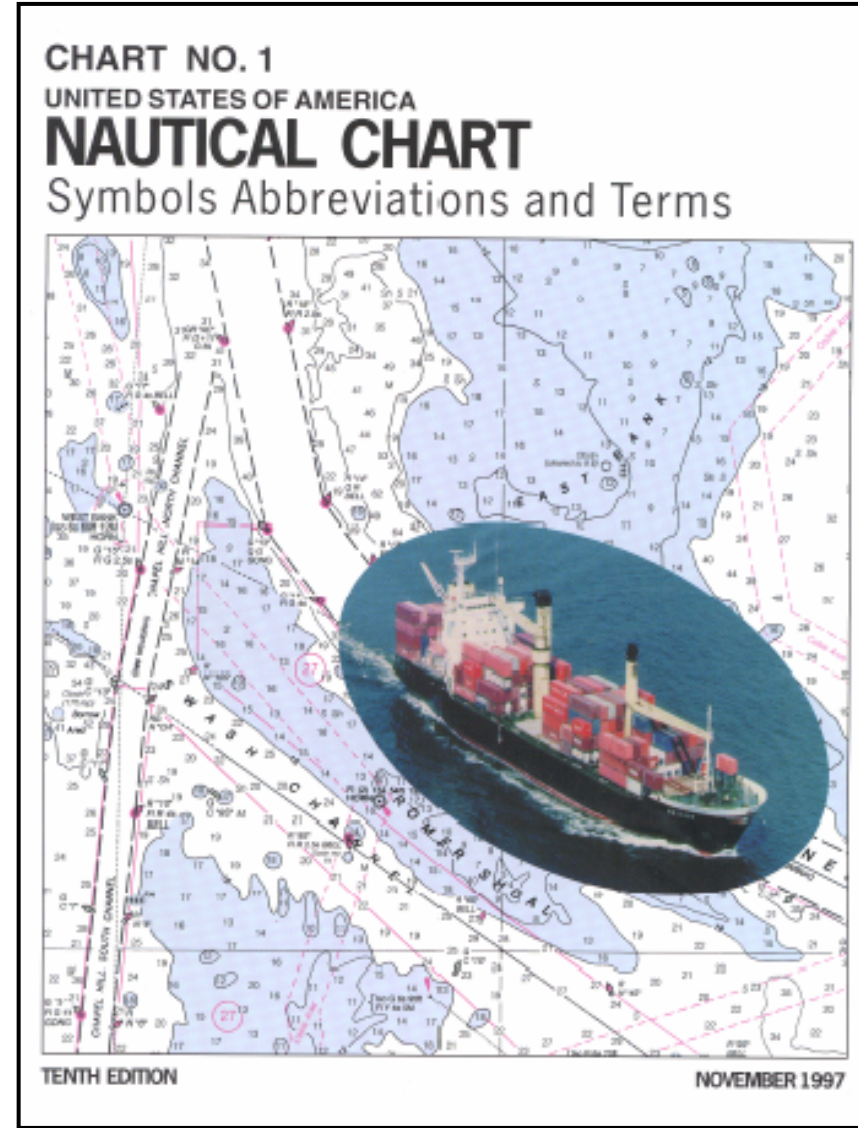
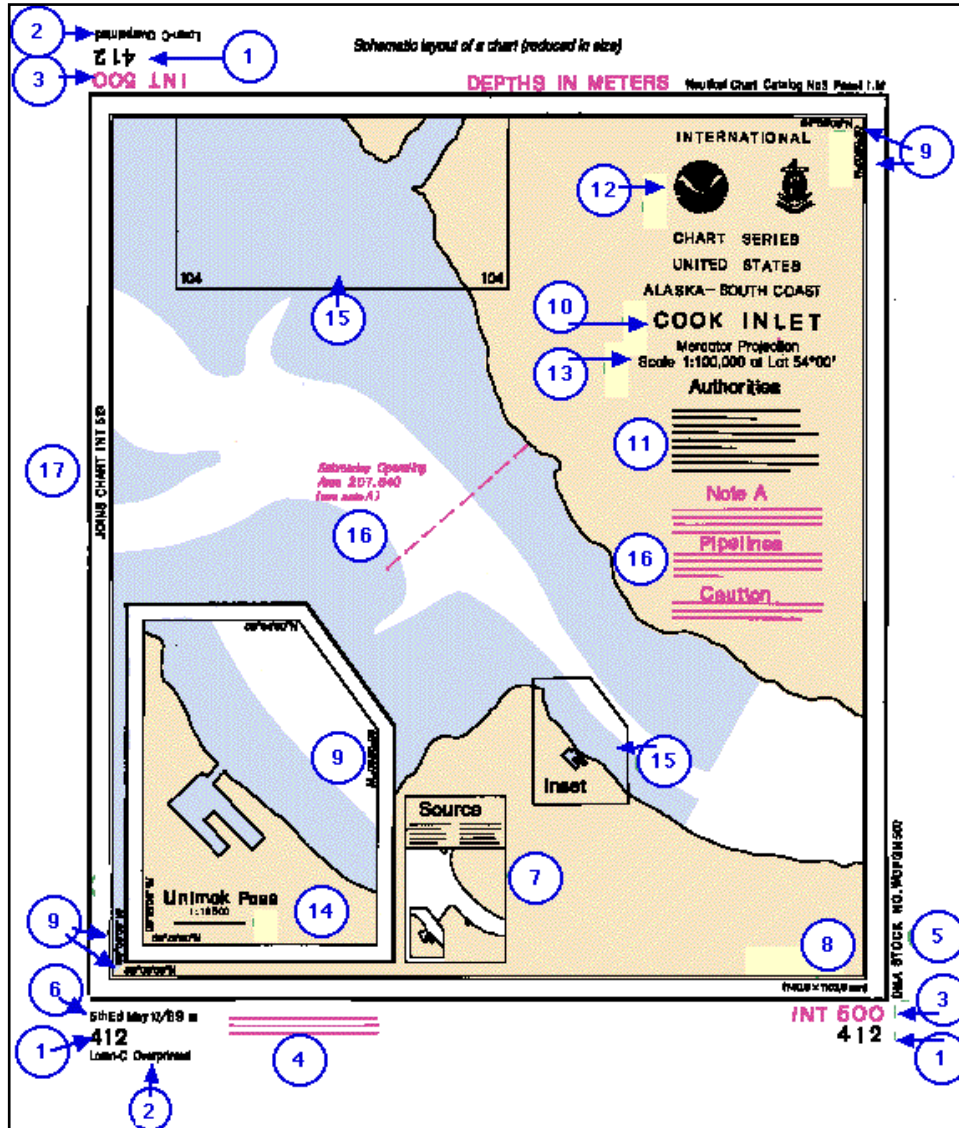


And Unless...



The Chart...

And the Chart's Answer Key





The Chart...

- What must you know?
 - Latitude & Longitude
 - Sounding datum
 - Nav Aids and Nav Hazards
 - Chart 1
 - Is it current?
 - Notice to Mariners



Latitude & Longitude...

- Two scales
 - Degrees, Minutes & Tenths
 - Degrees, Minutes & Seconds

Note: Many errors occur on the chart shift!!!

- Use latitude for distance measurement



Sounding Datum...

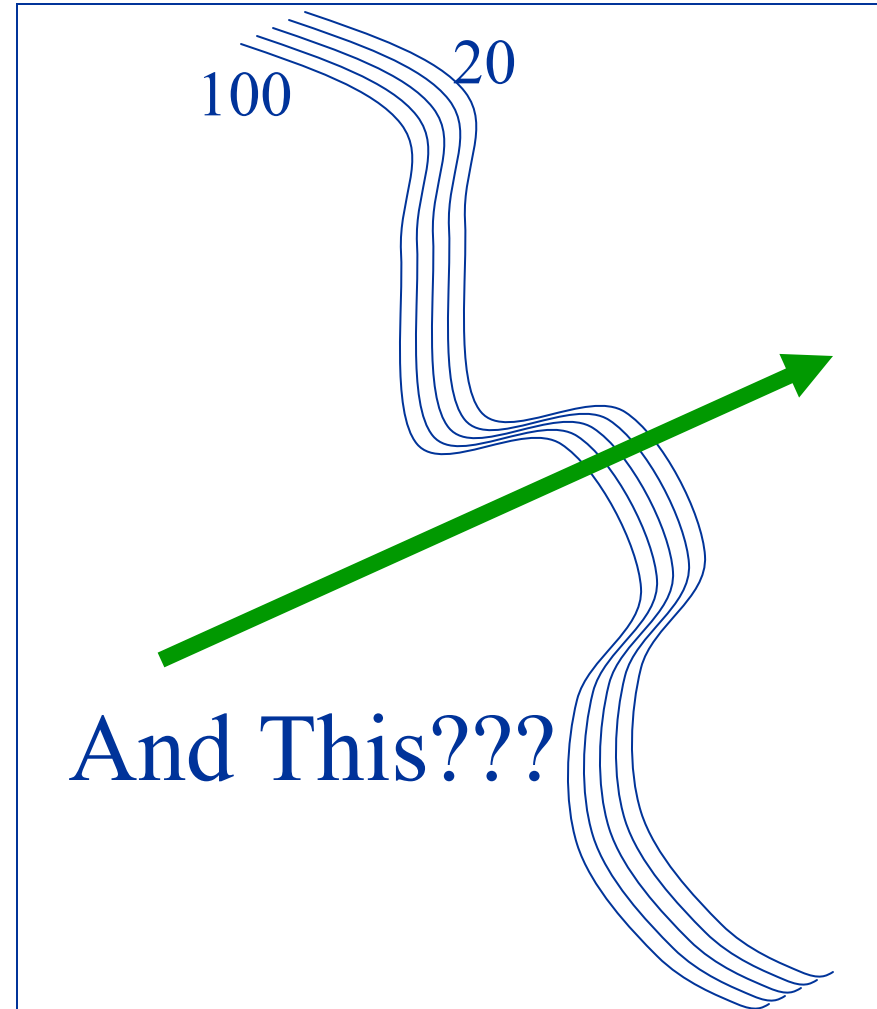
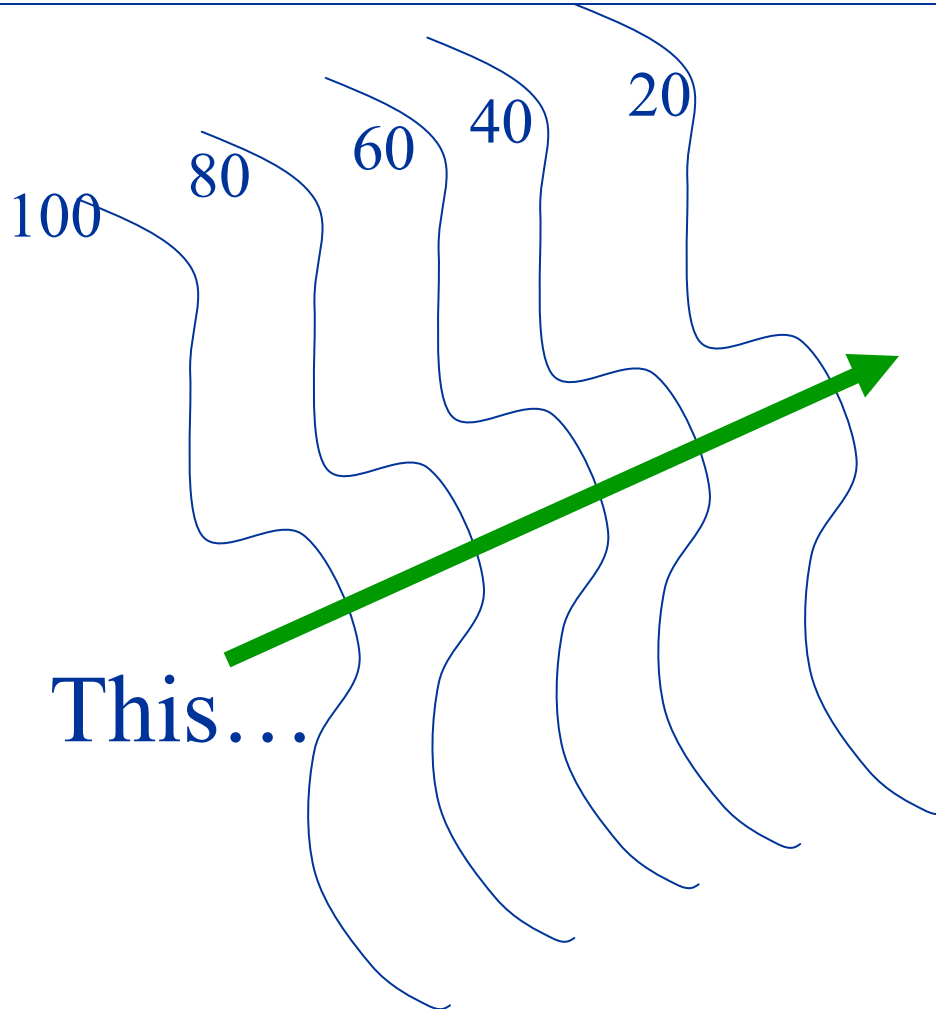
- Fathoms, Feet or Meters???



7' 6"



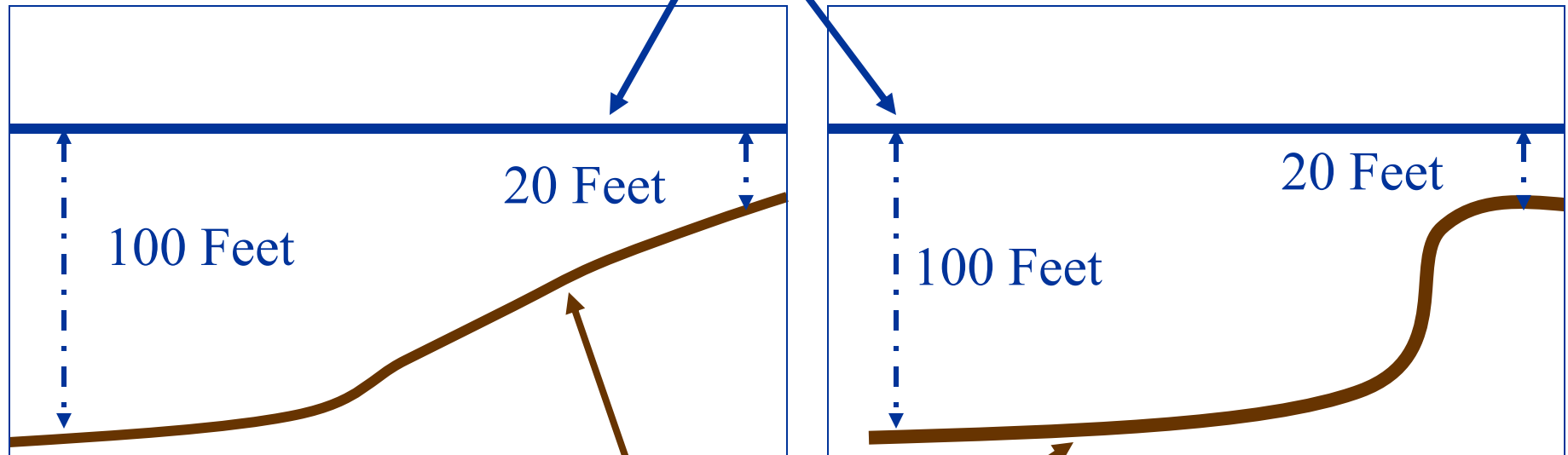
What's The Difference Between...





What's The Difference Between...

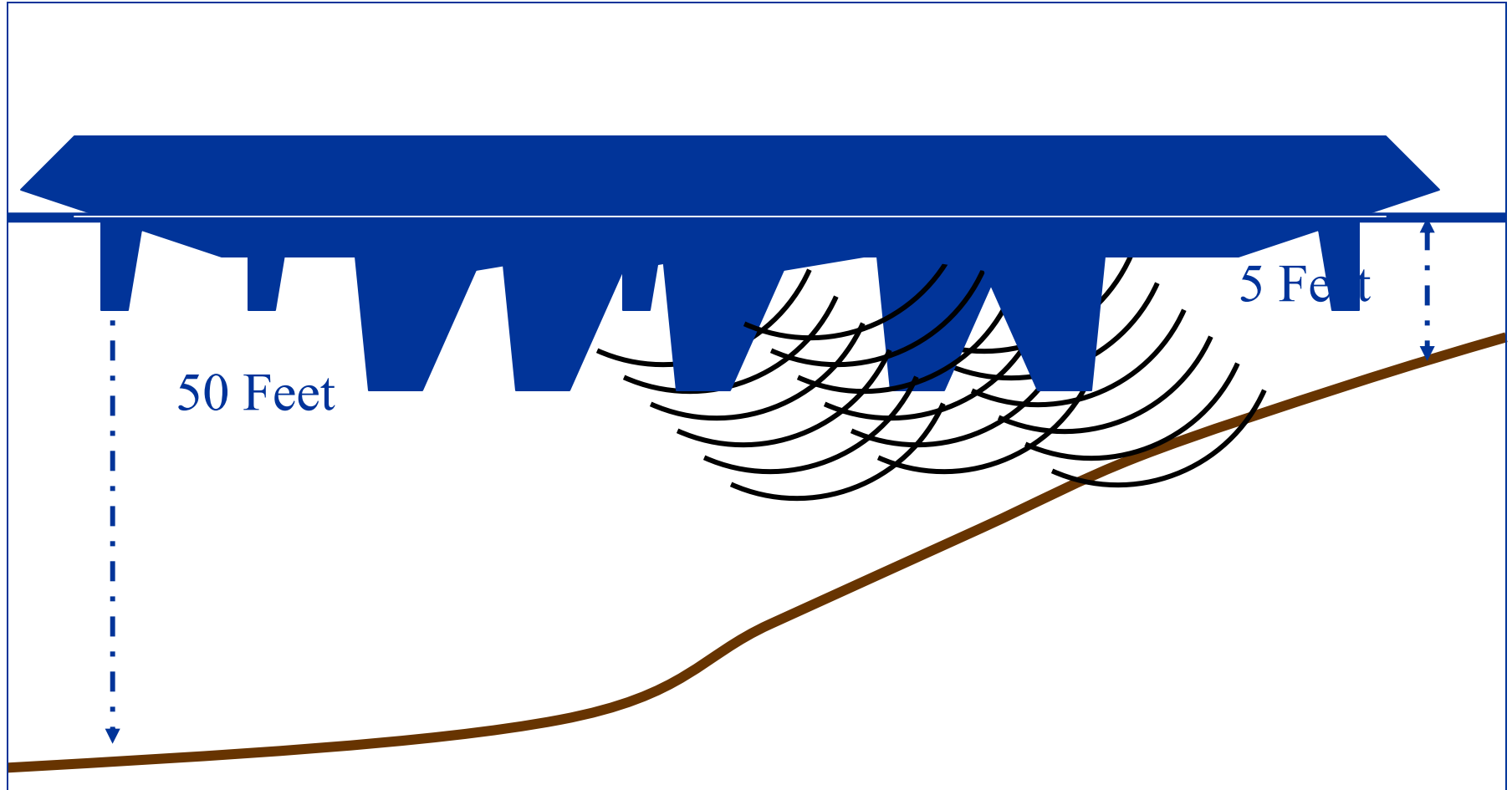
Water Surface



Bottom Contours



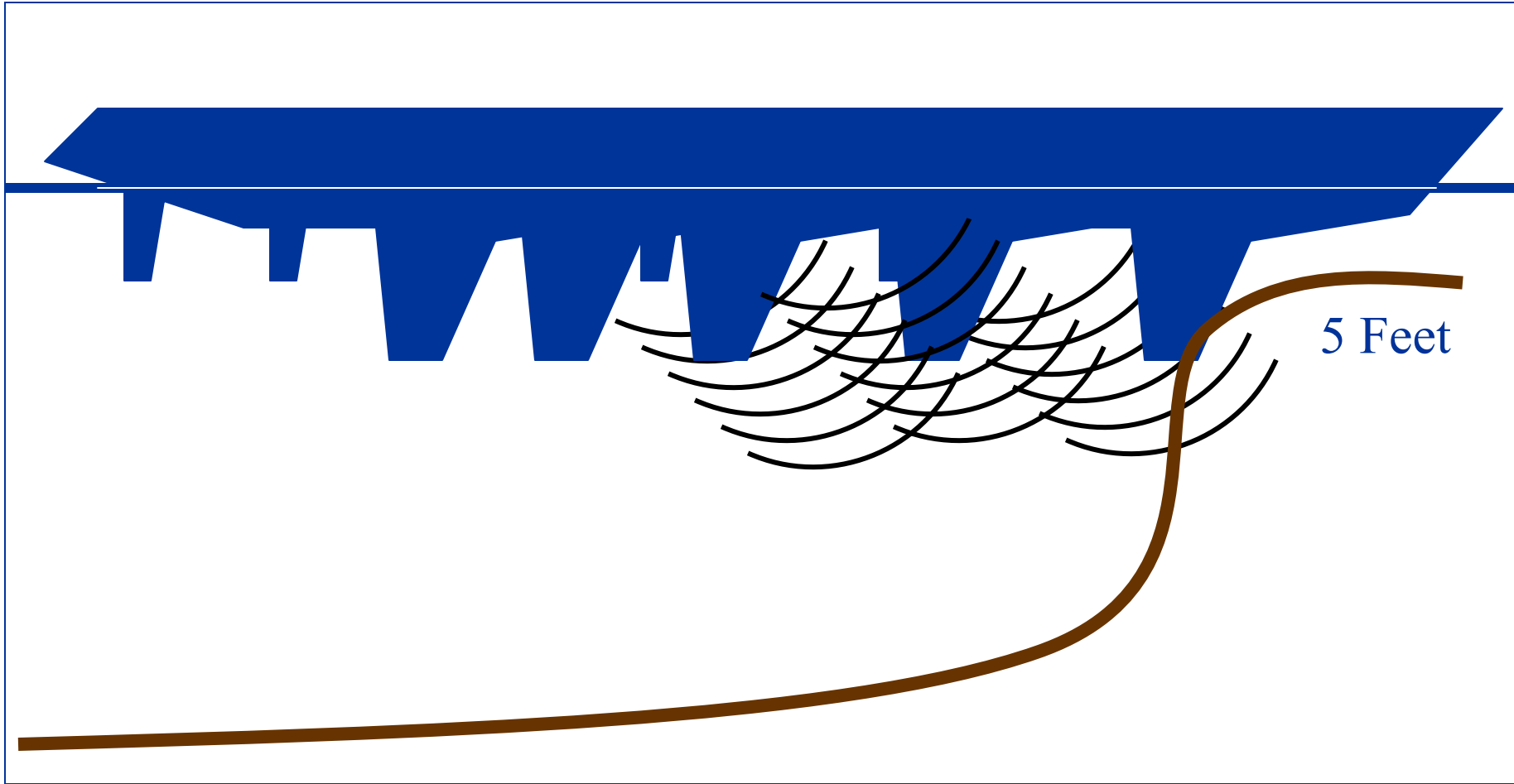
What's The Difference Between...



Time To React...



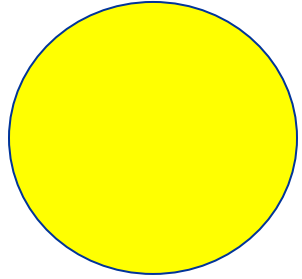
What's The Difference Between...



No Time To React...

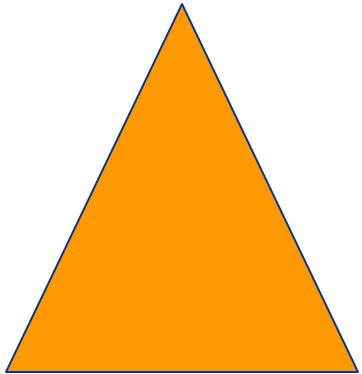


Identifying Nav Aids & Nav Hazards...



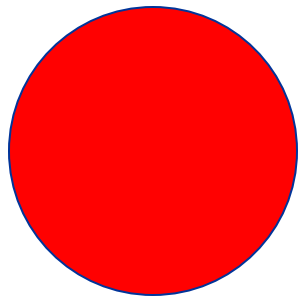
Visual Aids To Navigation

- Highly visible to naked eye, or binoculars
- Lighthouses, towers, etc



Electronic Aids To Navigation

- Highly visible on radar
- Jetty, Bridges, land masses

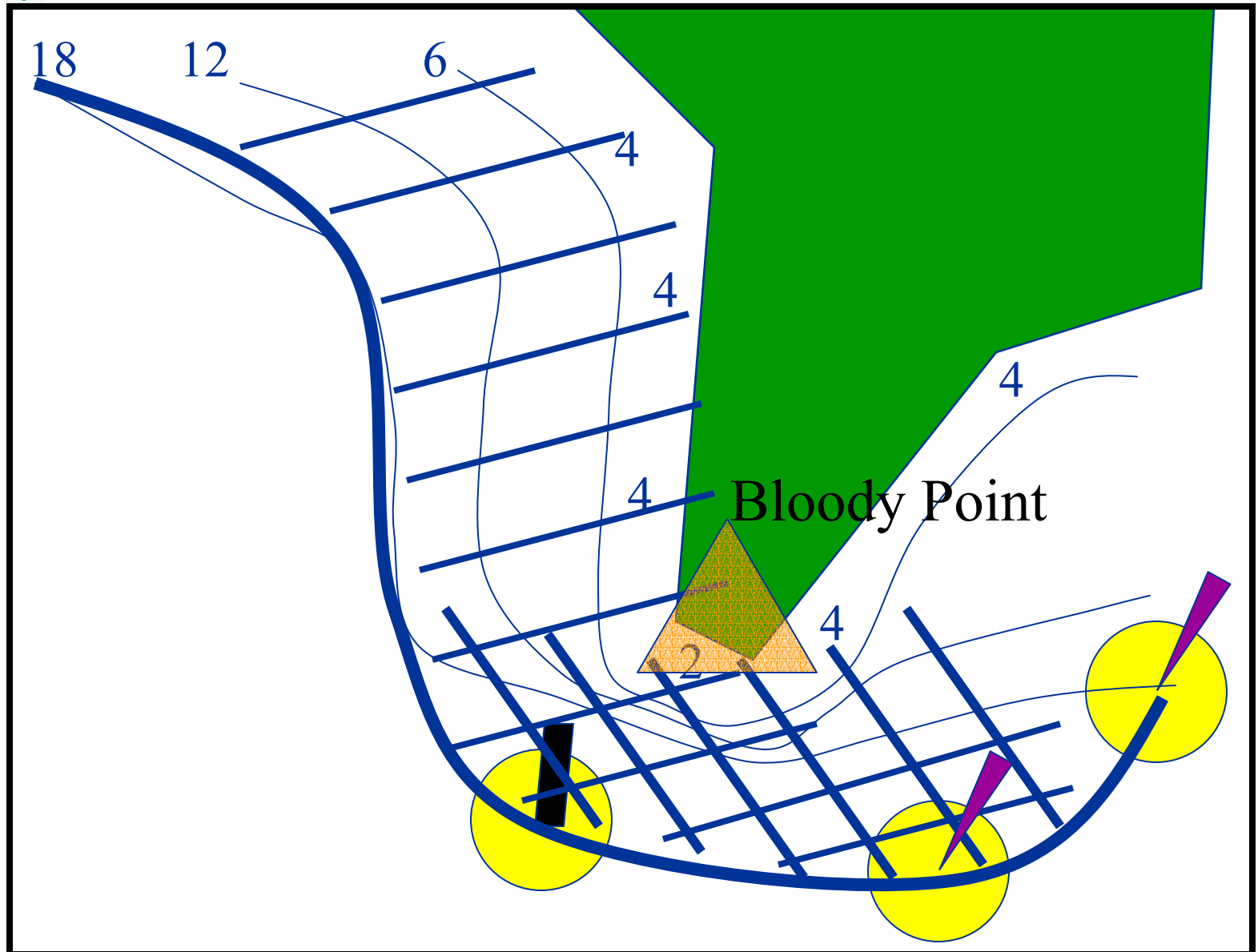


Hazards To Navigation

- Find these or they will find you!!!



Preping The Chart...





The Chart Prep Checklist...

Navy Sailing Chart Preparation Checklist

Chart Number _____

1. Note the chart's sounding datum (X the appropriate box).

Fathoms _____ Feet _____ Meters _____

2. Box the Sounding Datum. Highlight this in Orange and verify that it's visible after the chart is folded for use. If not - annotate it where it can best be seen.

3. Enter the vessel's draft (i.e., 7.5 feet) _____

- Use the same units as the chart's sounding datum

4. Round up _____

5. Define Your Risk Factor: _____

- Knowledgeable Crew/Racing Risk Factor = 1
- Novice Crew/Training Risk Factor = 2 or 3

6. Calculate minimum sounding line as follows:

- Multiply the number from Block 4 by the Risk Factor defined in Block 5

_____ X _____ = _____

(i.e., For a CSNTS Cruise: 8 feet times 2 = 16 ft)

6. Review the chart for actual sounding datum. Choose one based on Block 6 above (if required, round up): _____

7. Highlight this sounding line with a dark blue marker. Pay particular attention to the rate of change of depth, and mark the chart accordingly.

8. Visual Nav Aids: Carefully review the chart, and identify visual nav aids:

- Circle, highlight in yellow, and label ABC (Where ABC is an easily spoken, unmistakable noun name)

9. Nav hazards: Carefully review the chart, and identify unlighted buoys and other nav hazards.

- Circle, highlight in pink, and label UNLIT ABC/NAVHAZARD ABC.

10. Radar Nav Aids: Carefully review the chart, and identify radar nav aids.

- Triangle, highlight in orange, and label ABC
- Pay particular attention for RACON buoys. These should have a circle and a triangle, and be labeled RACON ABC

11. Track: Draw and label the track.

- The track can be drawn down the center of the deep draft channel to alert the watchsection to the expected location of merchant traffic.

12. Shoal Water: Using the blue line defined in 7 above, slash the shoal water areas in blue, and double slash those areas where soundings won't provide meaningful backup.

13. Fold and label: Fold and label the chart as follows:

- Fold the chart in fourths
- Label the corner with the fold with the chart's noun name in large letters. Immediately above/below list the next chart along the north/southbound track

14. Verify Currency: Immediately prior to use, verify the chart is up to date by querying the NIMA Notice To Mariners Database at:

http://pollux.nss.nima.mil/untm/untm_j_options.html?class_flag=N

Latest Chart Edition _____ On-hand Chart Edition _____

Latest Notice To Mariners _____

CHART UPDATED THROUGH NOTICE TO MARINERS _____ / _____
Number Date

Submitted: _____ Reviewed: _____
Midshipman Navigator AOIC/Navigator

Approved: _____
Officer In Charge



Should We Label A Track???

- Sailboats don't move in straight lines...
- Previews where are we're going
- It's proof that you thought it through...
- It tells you how much you've deviated from the game plan that was developed while warm, dry and comfortable
- Where are the merchants???

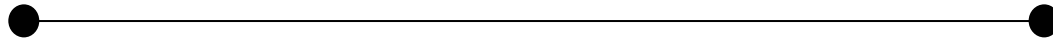


How Do We Label A Track???

A

TR 090 M

B



SOA 7



Chart Up To Date???

Query The Notice To Mariners Database

Notice to Mariners - Netscape


File Edit View Go Communicator Help

Back Forward Reload Home Search Netscape Print Security Shop Stop

Bookmarks Netsite: http://pollux.nss.nima.mil/untm/untm_options.html?class_flag=N What's Related

Counties and Re Instant Message Members WebMail Connections BizJournal SmartUpdate Mktplace

UNITED STATES OF AMERICA



Notice to Mariners

Note

The US Notice to Mariners corrects NIMA and NOS charts using information collected from many sources, among them the US Coast Guard Local Notices published by the several Coast Guard districts. From all sources the US Notice to Mariners will contain only those chart corrections of interest to *ocean going vessels*.

View/Download the NTM

Notices to Mariners are available for online review or download, as well as the special paragraphs from the last released NTM 01. For a specific data set, [Query the NTM Database](#) below.

Notice Number	Notice Date
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Document: Done

Start | Exploring... | Microsoft... | Notice... | Microsoft... | NetWare Br... | 11:23 PM



Making The Chart Corrections...

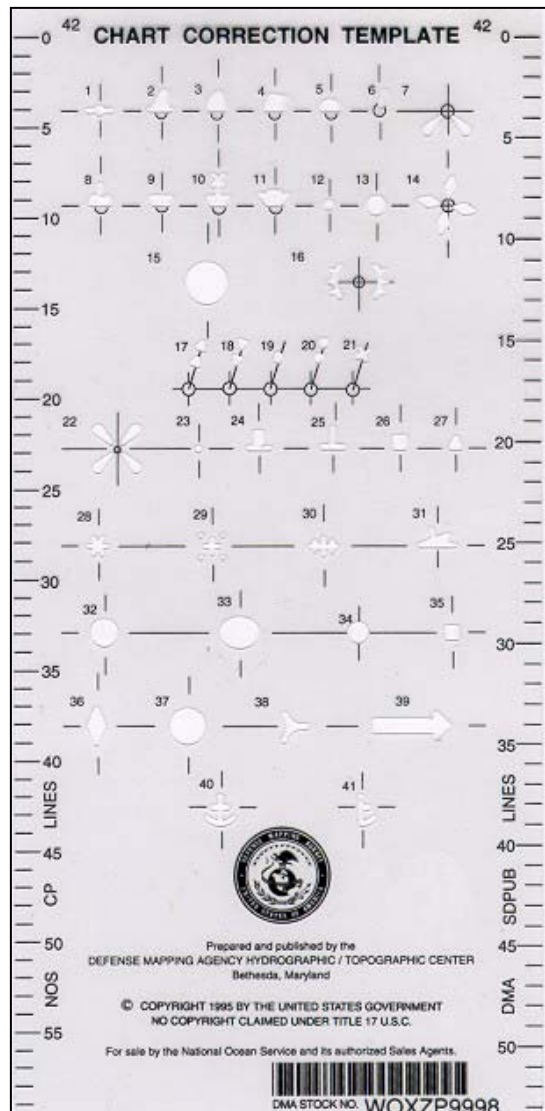
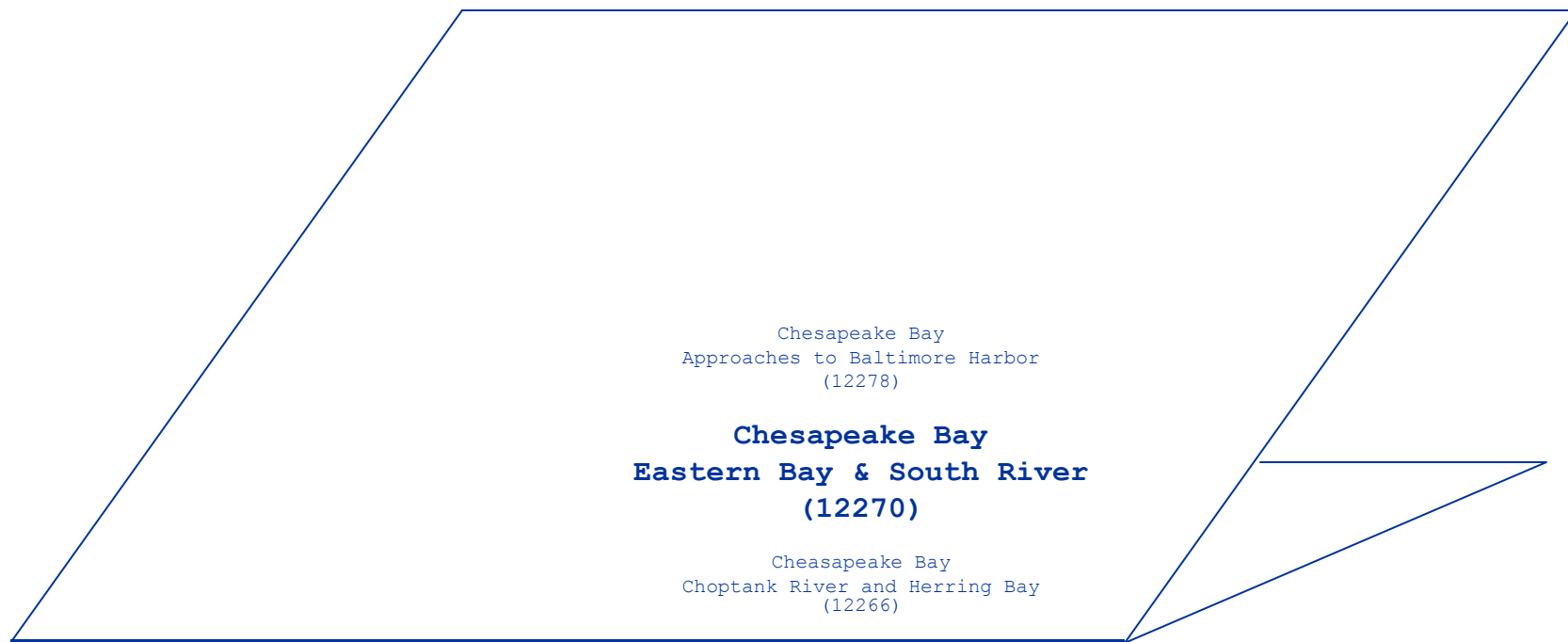


Chart Correction Template



How Do You Fold A Chart?





How's It Labeled?

Chesapeake Bay
Approaches To Baltimore Harbor
(12278)

**Chesapeake Bay
Eastern Bay & South River
(12270)**

Chesapeake Bay
Choptank River & Herring Bay
(12266)



Next Class...

- For Homework
 - Work on your charts with chart prep checklist
 - Coastal Navigation
 - Read Chapters 1, 2, 3, and 4
 - Skim Chapter 5
 - Study the two handouts
 - Lines of Position and Fixes
 - Dead Reckoning and Current Sailing



Next Class...



The Chart

- Primary emphasis on chart preparation

- The Fix

- Visual & Electronic
- Accuracy and errors

- The DR

- The most important thing on the chart

- Navigation Party

- Organization, procedures & philosophy

- Making landfall

- The Navigation Brief



What We Provided...

OIC/AOIC Navigation Kits

Price:

\$26.45 (w/o tote)

\$56.44 (w/ tote)

30 Navkits sold



Roller Plotter

\$8.65

(reg. \$17.30)



NaviTote

\$29.99

(reg. \$59.95)



Speed Wheel

\$7.95

(reg. \$14.50)



Compass & Divider Set

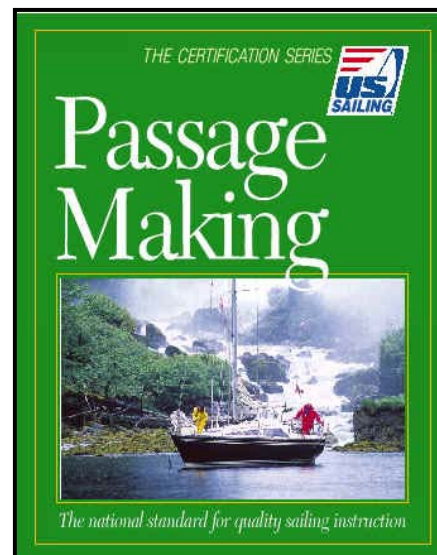
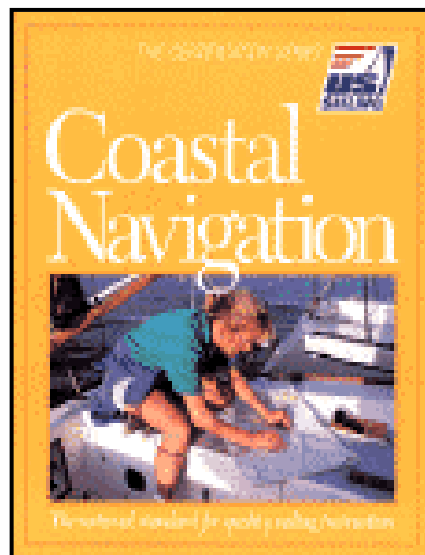
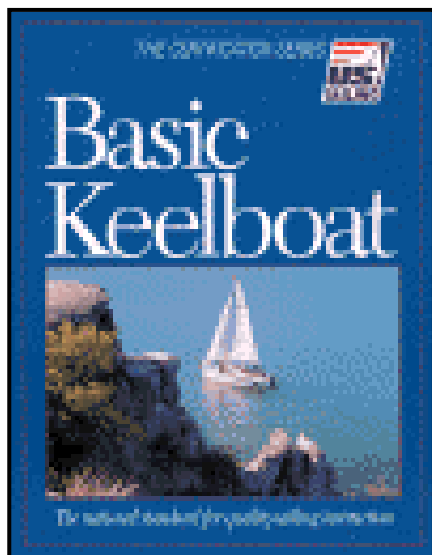
\$9.85

(reg \$19.70)



What We Provided...

Another Good Deal



Price:

\$90.00 - List

\$80.00 - US Sailing Members

\$40.00 - USNA Participants

50 3-Books Sets issued

45 Box sets sold